confident' (50.5%) to 'very confident' (15.5%) in providing nutritional recommendations; around one-third (29.0%) were 'somewhat confident'.
**Conclusions**: Despite their confidence in providing advice, GP trainees demonstrated incomplete knowledge of nutritional recommendations. Medical schools must provide doctors with crucial nutritional knowledge to help prevent chronic disease in the community.
**Funding source(s)**: The Almond Board of Australia.

## Concurrent session 3: gut health and nutrigenomics

### PROBIOTIC YOGHURT AND INCIDENCE OF DIARRHOEA IN CHILDREN: A DOUBLE BLIND, RANDOMISED, CONTROLLED TRIAL

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**Background/Aims**: To estimate the efficacy of a probiotic yogurt compared to a pasteurised yogurt for the prevention of antibiotic-associated diarrhoea in children.
**Methods**: This was a multisite, randomised, double-blind, placebo-controlled clinical trial conducted between 2009-2012. Children aged 1-12 years on antibiotics were randomised to receive 200 g/day of either yogurt (probiotic) containing *Lactobacillus rhamnosus* GG® (LGG®), *Bifidobacterium lactis*® (Bb-12®) and *Lactobacillus acidophilus*® (La-5®) or a pasteurized yogurt (placebo) for the duration of their antibiotic treatment. Stool frequency, and consistency were recorded for the duration of treatment plus one week. Primary outcome was stool frequency and consistency, classified at different levels of diarrhoea severity. Due to small number of cases of diarrhoea, comparisons between groups were made using Fisher's exact analysis.
**Results**: Seventy children completed the trial (36 placebo and 34 probiotic). There were no incidents of severe diarrhoea (stool consistency $\geq 6$, $\geq 3$ stools/day for $\geq 2$ consecutive days) in the probiotic group and six in the placebo group ($p = 0.025$). There was also only one episode of minor diarrhoea (stool consistency $\geq 5$, $\geq 2$ stools/day for $\geq 2$ days) in the probiotic group compared to 21 in the placebo group ($p < 0.001$). Probiotic group reported fewer (one abdominal pain, one vomiting, one headache) adverse events than the placebo group (six abdominal pain, four loss of appetite, one nausea).
**Conclusions**: A yogurt combination of LGG®, La-5® and Bb-12® is an effective method for reducing the incidence of antibiotic-associated diarrhoea in children.
**Funding source(s)**: Parmalat Australia.

### THE IMPACT OF GASTROINTESTINAL SYMPTOMS AND DERMATOLOGICAL INJURIES ON NUTRITIONAL INTAKE DURING EXTREME ENDURANCE EVENTS

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**Background/Aims**: Gastrointestinal symptoms (GIS) and dermatological injuries (DI) are commonly reported after endurance running. The current study aimed to determine whether GIS and DI influences nutritional intake of ultra-runners during a 230 km multi-stage ultra-marathon (MSUM) conducted in hot conditions (32-40 °C) and a 24-hours continuous (122-208 km range) ultra-marathon (24h) conducted in temperate conditions (0-20 °C).
**Methods**: ***Ad libitum*** food and fluid intakes of ultra-runners (MSUM $n = 74$, 24h $n = 25$) were recorded throughout competition in real-time and analysed by dietary analysis software. A GIS and DI medical log was used to monitor symptoms throughout both events. ANOVA was used to analyse nutritional intake data between no-GIS vs. GIS, no-DI vs. DI; and severity of symptoms and injuries.
**Results**: GIS were reported by 85% and 65% of ultra-runners throughout MSUM and 24h, respectively. GIS during MSUM resulted in reduced total daily, pre-stage, during, and post-stage energy ($p = 0.04$) and macronutrient intakes ($p = 0.02$); whereas GIS during 24h did not influence nutritional variables. Throughout MSUM and 24h, 76% and 12% of ultra-runners required medical intervention for DI, respectively. DI during MSUM resulted in reduced total daily energy intake ($p = 0.05$), carbohydrate ($p = 0.045$) and fluid ($p = 0.016$) intake during running, and protein intake post-stage ($p = 0.045$). DI throughout 24h was low, thus comparative analyses was not viable.
**Conclusions**: High rates of GIS were reported in both events; however GIS only affected nutritional intake during MSUM, likely attributed to exertional-heat stress. DI presence and severity reduce nutritional intake during running and recovery in MSUM, suggesting DI prevention strategies are warranted.
**Funding source(s)**: N/A.

### GLOBAL GENE TRANSCRIPT PROFILING REVEALS LACTOFERRIN INTERVENTION INFLUENCES NEURAL DEVELOPMENT AND COGNITION

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**Background/Aims**: To test the hypothesis that lactoferrin (Lf) may induce gene expression profiling and function to improve neurodevelopment and cognition in postnatal piglets, an animal model for human infants.
**Methods**: Three-day-old male piglets were randomly allocated to two groups. Group 1 were fed milk replacer supplemented with Lf at 0.6 g/L ($n = 17$) and Group 2, 0.06 g/L ($n = 16$; control). RNA was isolated from the hippocampus of 10 piglets/group and subjected to transcript profiling using a Porcine Affymetrix GeneChips representing 20,201 genes from *Sus scrofa*. A TaqMan® Gene expression assay based real-time PCR was used to validate the microarray findings. Results were analysed using Partek Genomics Suite 6.5 software and Ingenuity System (Ingenuity® System, Redwood City, CA, USA).
**Results**: A total of 1,187 genes were differentially expressed between the control and Lf groups, based on our filter criteria (fold change: 1.15 and $p < 0.05$). A positive global effect of Lf on neurodevelopment and cognition was observed, as evidenced by the modulation of a wide range of neuronal processes including an increase in cellular protrusions, microtubule dynamics, formation and organization of neurite outgrowth, cytoskeleton formation, and a decrease in anxiety. TaqMan® gene expression assays which showed that Lf up-regulated the brain-derived neurotrophic factor (BDNF) gene and signalling pathway known to influence early neurodevelopment and cognition in postnatal mammals.
**Conclusions**: Lf supplementation up-regulated several canonical signalling pathways associated with neurodevelopment and cognition, the principal one being BDNF.
**Funding source(s):** Medical school of Xiamen University, China, Nestle Research Centre-Beijing.

### BITTER TASTE PHENOTYPE BETTER PREDICTS FOLATE STATUS THAN TAS2R38 BITTER RECEPTOR GENOTYPE ALONE IN A COLONOSCOPY COHORT

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**Background/Aims**: *TAS2R38* polymorphisms influence bitter taste perception. Those sensitive to bitter tastes may consume less healthy vegetables, resulting in a higher risk of diet-related disease. We assessed the influence of *TAS2R38* genotype and bitter taste phenotype on folate intake and blood levels, as a marker of healthy vegetable consumption, and if this influenced risk of adenomatous polyps (AP).
**Methods**: Blood was collected from colonoscopy patients ($n = 206$). Polymorphisms in the *TAS2R38* gene were measured (Restriction fragment length polymorphism-PCR/sequencing; *A49P*; *rs713598*, *V262A*: *rs1726866*,